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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,337	01/26/2004	Takeo Tsukamoto	NEC03P248-HSe	6964

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EXAMINER

TRAN, THANH Y

ART UNIT PAPER NUMBER

2822

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/763,337

Applicant(s)

TSUKAMOTO, TAKEO

Examiner

Thanh Y. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 8-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/25/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

Applicant's election without traverse of Species I (claims 1-7) in the reply filed on 10/28/05 is acknowledged.

#### ***Claim Objections***

1. Claim 1 is objected to because of the following informalities: In line 1, the word "m thod" should be changed to: --method-- . Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tateoka et al (U.S. 4,916,087) in view of Homma et al (U.S. 2002/0068452).

As to claim 1, Tateoka discloses in figures 4a-4c a method of manufacturing a semiconductor device; which comprises the steps of: depositing, on a basic substance surface (see surface of substrate 11 as indicated in figure 1e) with a difference in level, a first film (46) through an anisotropic growth (see col. 6, lines 21-30); forming a second film (48) through an isotropic growth (see col. 6, lines 32-37).

Tateoka does not disclose a second film having a polishing rate equivalent to or less than a polishing rate of the first film to reinforce a projection formed on the first film; and polishing the first film and the second film using a ceria slurry.

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Homma et al discloses in figures 2a-2b a semiconductor device, wherein a second film (“inorganic insulating film” 22) having a polishing rate equivalent to or less than a polishing rate of the first film (“organic insulating film” 23) to reinforce a projection formed on the first film (23); and polishing the first film (23) and the second film (22) using a ceria slurry (see paragraph [0017]). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Tateoka by having a second film which has a polishing rate equivalent to or less than a polishing rate of the first film to reinforce a projection formed on the first film; and polishing the first film and the second film using a ceria slurry as taught by Homma et al for controlling the pH values in the regions of the substrate (see paragraphs [0003] & [0017] in Homma et al).

As to claim 2, Tateoka discloses in figures 4a-4c a method of manufacturing a semiconductor device, wherein the difference in level is formed of a trench (44).

As to claim 3, Tateoka discloses in figures 4a-4c a method of manufacturing a semiconductor device, wherein the difference in level is formed of an interconnection (an interconnection between first film 46, second film 48 and the substrate 11).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tateoka et al (U.S. 4,916,087) in view of Homma et al (U.S. 2002/0068452) as applied to claim 1 above, and further in view of Tani et al (U.S. 6,936,478).

As to claim 4, Tateoka in view of Homma does not disclose a stopper film which is to act as a polishing stopper, having a polishing rate less than a polishing rate of the first film, is formed on an upper level section constituting the difference in level.

Tani et al (U.S. 6,936,478) discloses in figure 58 a semiconductor device, wherein a stopper film (143) which is to act as a polishing stopper, having a polishing rate less than a polishing rate of the first film ("ferroelectric film" 133), is formed on an upper level section constituting the difference in level (see figure 58, col. 4, lines 53-59). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Tateoka in view of Homma by having a stopper film which is to act as a polishing stopper, having a polishing rate less than a polishing rate of the first film, is formed on an upper level section constituting the difference in level as taught as Tani et al for functioning as stopper layer during chemical-mechanical polishing of the first film (see col. 4, lines 53-59 in Tani et al).

As to claim 5, Tateoka does not disclose the first film and the second film are both oxide films and the stopper film is a nitride film. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Tateoka by using oxide material for the first and second films and nitride material for the stopper film for easily performing the process steps, since it has been held to be within the general skill of a

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worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

6. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tateoka et al (U.S. 4,916,087) in view of Homma et al (U.S. 2002/0068452) as applied to claim 1 above, and further in view of Kanda (U.S. 6,818,539).

As to claims 6 and 7, Tateoka in view of Homma et al does not disclose the first film is a film formed by the high density plasma CVD (Chemical Vapor Deposition) method; and the second film is a film formed by one of the atmospheric CVD method, the low pressure CVD method and the plasma CVD method.

Kanda (U.S. 6,818,539) discloses in figure 1, a semiconductor device, wherein the first film (31) is a film formed by the high density plasma CVD (Chemical Vapor Deposition) method; and the second film (32) is a film formed by the plasma CVD method (see col. 7, lines 5-18). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Tateoka in view of Homma et al by using the high density plasma CVD method for forming the first film; and the plasma CVD method for forming the second film as taught by Kanda for performing the films in a prescribed period of time (see col. 7, lines 5-18 in Kanda).

**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Y. Tran whose telephone number is (571) 272-2110. The examiner can normally be reached on M-F (9-6:30pm).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith, can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TYT



HOAI PHAM  
PRIMARY EXAMINER